

# **Montana Fish, Wildlife & Parks**

## **SPECIFICATIONS FOR WORK SPECIAL PROVISIONS**

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## 1. PROJECT DESCRIPTION

The Project involves construction work associated with:

**Site Improvements, Island Lake Fishing Access Site (FAS)  
Fish, Wildlife & Parks (FWP) project # 7113702  
Located in Lincoln County, MT**

The project generally includes site grading involving roadway reconditioning, excavation and embankment, geotextile fabric installation, crushed base course placement, drainage, farm and jack-leg fence, revegetation, and incidentals.

## 2. PROJECT RELATED CONTACTS

Project contacts are designated as follows:

**Owner:**

Montana FWP  
1420 E. Sixth Ave.  
PO Box 200701  
Helena, MT 59620-0701

**FWP Project Representative:**

Bardell Mangum  
FWP Project Manager  
1522 9<sup>th</sup> Avenue  
Helena, MT 59620  
406-841-4012 (wk)  
406-431-4062 (cell)  
406-841-4004 (fax)

## 3. SITE INSPECTION

All Bidders should satisfy themselves as to the construction conditions by personal examination of the site described in this document. Bidders are encouraged to make any - investigations necessary to assess the nature of the construction and the difficulties to be encountered, see General Conditions, Article 3.

## 4. SOILS INFORMATION

Geotechnical investigation work has not been done for this Project. It is the responsibility of the Bidders to conduct all investigations and determine the soil type and digging conditions that may be encountered with this Project prior to bid preparation, see General Conditions, Article 3.

## 5. PROJECT REPRESENTATIVE, INSPECTIONS, AND TESTING

The Contractor's work will be periodically tested and observed to insure compliance with the Contract Documents. Complete payment will not be made until the Contractor has

demonstrated that the work is complete and has been performed as required. If the Project Representative detects a discrepancy between the work and the requirements of the Contract Documents at any time, up to and including final inspection, such work will not be completely paid for until the Contractor has corrected the deficiency, see General Conditions, Article 9.

The Project Representative will periodically monitor the construction of work to determine if the work is being performed in accordance with the contract requirements. The Project Representative does not have the authority or means to control the Contractor's methods of construction. It is, therefore, the Contractor's responsibility to utilize all methods, equipment, personnel, and other means necessary to assure that the work is installed in compliance with the Drawings and Specifications, and laws and regulations applicable to the work. Any discrepancies noted shall be brought to the Contractor's attention, who shall immediately correct the discrepancy. Failure of the Project Representative to detect a discrepancy will not relieve the Contractor of his ultimate responsibility to perform the work as required, see General Conditions, Article 3.

The Contractor shall inspect the work as it is being performed. Any deviation from the Contract requirements shall be immediately corrected. Prior to any scheduled observation by the Project Representative, the Contractor shall again inspect the work and certify to the Project Representative that he has inspected the work and it meets the requirements of the Contract Documents. The Project Representative may require uncovering of work to verify the work was installed according to the contract documents, see General Conditions, Article 12.

The work will be subject to review by the Project Representative. The results of all such observations, and all contract administration, shall be directed to the Contractor only through the Project Representative.

5.1 Services Required by the Contractor. The Contractor shall provide the following services:

- a. Any field surveys to establish locations, elevations, and alignments as stipulated on the Contract Documents. FWP reserves the right to set preliminary construction staking for the project. The Contractor is responsible to notify FWP for any construction staking discrepancies.
- b. Preparation and certification of all required shop drawings and submittals as described in the General Conditions, Article 3.
- c. All testing requiring the services of a laboratory to determine compliance with the Contract Documents shall be performed by an independent commercial testing laboratory acceptable to the Project Representative. The laboratory shall be staffed with experienced technicians properly equipped, and fully qualified to perform the tests in accordance with the specified standards.
- d. Preparation and submittal of a construction schedule, including submittals, see

General Conditions, Article 3. The schedule shall be updated as required, as defined in the Contract Documents.

- e. All Quality Control testing as required by the Contractor's internal policies.
- f. All Quality Assurance testing and/or re-testing as stated in the Contract Documents, see General Conditions, Article 13.

5.2 Services Provided by the Owner. The Owner shall provide the following services at no cost to the Contractor except as required for retests as defined in the Contract Documents.

- a. The Project Representative may check compaction of backfill and surfacing courses using laboratory testing submittal information supplied by the Contractor. These tests are to determine if compaction requirements are being fulfilled in accordance with the Contract Documents. It is ultimately the responsibility of the Contractor to insure that this level of compaction is constant and met in all locations.
- b. Any additional Quality Assurance testing deemed appropriate by the Owner, at the Owner's expense.

## **6. ENGINEERING INTERPRETATIONS**

Timely Engineering decisions on construction activities or results have an important bearing on the Contractor's schedule. When engineering interpretation affects a plan design or specifications change, it should be realized that more than 24 hours may be required to gain the necessary Owner participation in the decision process including time for formal work directive, or change order preparation as required.

## **7. REJECTED WORK**

Any defective work or nonconforming materials or equipment that may be discovered at any time prior to the expiration of the warranty period, shall be removed and replaced with work or materials conforming to the provisions of the Contract Documents, see General Conditions, Article 12. Failure on the part of the Project Representative to condemn or reject bad or inferior work, or to note nonconforming materials or equipment on the Contractors submittals, shall not be construed to imply acceptance of such work. The Owner shall reserve and retain all its rights and remedies at law against the Contractor and its Surety for correction of any and all latent defects discovered after the guarantee period (MCA 27-2-208).

Only the Project Representative will have the authority to reject work which does not conform to the Contract Documents.

## **8. UTILITIES**

The exact locations of existing utilities that may conflict with the work are not precisely known. It shall be the Contractor's responsibility to contact the owners of the respective utilities and arrange for field location services. **One Call Locators, 1-800-424-5555**

The Contract Documents may show utility locations based on limited field observation and information provided to the Project Representative by others. **The Project Representative cannot guarantee their accuracy.** The Contractor shall immediately notify the Project Representative of any discrepancies with utility locations as shown on the Contract Drawings and/or their bury depths that may in any way affect the intent of construction as scoped in these specifications.

There will be no separate payment for exploratory excavation required to locate underground utilities.

8.1 Notification. The Contractor shall contact, in writing, all public and private utility companies that may have utilities encountered during excavation. The notification includes the following information:

- a. The nature of the work that the Contractor will be performing.
- b. The time, date and location that the Contractor will be performing work that may conflict with the utility.
- c. The nature of work that the utility will be required to perform such as moving a power pole, supporting a pole or underground cable, etc.
- d. Requests for field location and identification of utilities.

A copy of the letter of notification shall be provided to the Project Representative. During the course of construction, the Contractor shall keep the utility companies notified of any change in schedule, or nature of work that differs from the original notification.

8.2 Identification. All utilities that may conflict with the work shall be the Contractor's responsibility to locate before any excavation is performed. Field markings provided by the utility companies shall be preserved by the Contractor until actual excavation commences. All utility locations on the Drawings should be considered approximate and should be verified in the field by the Contractor. The Contractor shall also be responsible for locating all utilities that are not located on the Drawings.

Utilities are depicted on the Contract Documents in accordance with their achieved "Quality Levels," as defined in the American Society of Civil Engineer's Document, ASCE 38, "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data." Reliance upon these data for risk management purposes during bidding does not relieve the Contractor, or Utility Owner from following all applicable utility damage prevention statutes, policies, and/or procedures during construction. It is important that the Contractor investigates and understands the scope of work between the

project Owner and Engineer regarding scope of limits of the utility investigations leading to these utility depictions. Definitions of Quality Levels are described as follows:

- a. "QUALITY LEVEL A" – (QLA): LOCATING THROUGH EXCAVATION. QLA data are highly accurate and are obtained by surveying an exposed utility. As such, both horizontal and vertical data are recorded. Survey accuracies are typically set at 15mm (1/2-inch) vertically, and to project survey standards horizontally (typically the same as for topography features), although these survey accuracies and precisions are generally left to the owner to specify in a scope of work. In addition to the applicable standard of care and any other additional standards imposed by commercial indemnity clauses, the accuracy of these location data is also typically guaranteed. Other data typically characterized include material type, surface elevation, utility size/capacity, outside dimensions, and configurations, soil type, and utility condition.
- b. "QUALITY LEVEL B" – (QLB): DESIGNATING. QLB information is obtained through the application of appropriate surface geophysical methods to identify the existence and approximate horizontal location of utilities (a utility's "designation") within the project limits, followed by survey, mapping, and professional review of that designation. Underground utilities are identified by interpretation of received signals generated either actively or passively, and through correlating these received signals with visible objects (QLC) and record data (QLD) to determine function. Designated utilities that can't be identified are labeled as "unknowns." Although approximate has no accuracy associated with it, generally the locations are within inches rather than feet. The more utility congested the area or the deeper the utilities, the less likely it is that the designations will achieve that accuracy. These designations are then surveyed to project accuracies and precisions, typically third-order accuracy similar to other topography features. Note that surveying existing one-call marks does not lead to QLB data, since the genesis of the marks was not under the direct responsible charge of the professional certifying the QLB depictions, and one-call generally does not address unknown utilities, privately owned utilities, utilities without records, abandoned utilities, and so on. Nor does the professional have knowledge of the field technician's qualifications, training, and level of effort.
- c. "QUALITY LEVEL C" – (QLC): SURFACE VISIBLE FEATURE SURVEY. QLC builds upon the QLD information by adding an independent detailed topography site survey for surface-visible appurtenances of subsurface utilities including but not limited to fire hydrants, valves, risers, and manholes. Professional judgment is used to correlate the QLD data to the surveyed features, thus

increasing the reliability of both utility location and existence. It is a function of the professional to determine when records and features do not agree and resolve discrepancies. This may be accomplished by depiction of a utility line at quality level D, effectively bypassing or disregarding (but still depicting) a surveyed structure of unknown origin. Additional resolution may result from consultation with utility owners.

- d. "QUALITY LEVEL D" – (QLD): EXISTING RECORDS RESEARCH. QLD is the most basic level of information. Information is obtained from the review and documentation of existing utility records, verbal accounts, and/or one-call markings (to determine the existence of major active utilities and their approximate locations).

- 8.3 Removal or Relocation of Utilities. All electric power, street lighting, gas, telephone, and television utilities that require relocation will be the responsibility of the utility owner. A request for extending the specified contract time will be considered if utility owners cause delays.
- 8.4 Public Utilities. Water, sewer, storm drainage, and other utilities owned and operated by the public entities shall, unless otherwise specifically requested by the utility owner, be removed, relocated, supported or adjusted as required by the Contractor at the Contractor's expense. All such work shall be in accordance with these Contract Documents, or the Owner's Standard Specifications or written instructions when the work involved is not covered by these Specifications.
- 8.5 Other Utilities. Utilities owned and operated by private individuals, railroads, school districts, associations, or other entities not covered in these Special Provisions shall, unless otherwise specifically requested by the utility owner, be removed, relocated, supported or adjusted as required by the Contractor at the Contractor's expense. All work shall be in accordance with the utility owner's directions, or by methods recognized as being the standard of the industry when directions are not given by the owner of the utility.
- 8.6 Damage to Utilities and Private Property. The Contractor shall protect all utilities and private property and shall be solely responsible for any damage resulting from his construction activities. The Contractor shall hold the Owner and Project Representative harmless from all actions resulting from his failure to properly protect utilities and private property. All damage to utilities shall be repaired at the Contractor's expense to the full satisfaction of the owner of the damaged utility or property. The Contractor shall provide the Owner with a letter from the owner of the damaged utility or property stating that it has been repaired to the utility owner's full satisfaction.
- 8.7 Structures. The Contractor shall exercise every precaution to prevent damage to existing buildings or structures in the vicinity of his work. In the

event of such damages, he shall repair them to the satisfaction of the owner of the damaged structure at no cost to the Owner.

- 8.8 Overhead Utilities. The Contractor shall use extreme caution to avoid a conflict, contact, or damage to overhead utilities, such as power lines, streetlights, telephone lines, television lines, poles, or other appurtenances during the course of construction of this project.
- 8.9 Buried Gas Lines. The Contractor shall provide some means of overhead support for buried gas lines exposed during trenching to prevent rupture in case of trench caving.
- 8.10 Pavement Removal. Where trench excavation or structure excavation requires the removal of curb and gutter, concrete sidewalks, or asphalt or concrete pavement, the pavement or concrete shall be cut in a straight line parallel to the edge of the excavation by use of a spade-bitted air hammer, concrete saw, colter wheel, or similar approved equipment to obtain a straight, square clean break. Pavement cuts shall be 2 feet wider than the actual trench opening.
- 8.11 Survey Markers and Monuments. The Contractor shall use every care and precaution to protect and not disturb any survey marker or monuments, such as those that might be located at lot or block corners, property pins, intersection of street monuments or addition line demarcation. Such protection includes markings with flagged high lath and close supervision. No monuments shall be disturbed without prior approval of the Project Representative. Any survey marker or monument disturbed by the Contractor during the construction of the project shall be replaced at no cost to the Owner by a licensed land surveyor.
- 8.12 Temporary Utilities. The Contractor shall provide all temporary electrical, lighting, telephone, heating, cooling, ventilating, water, sanitary, fire protection, and other utilities and services necessary for the performance of the work. All fees, charges, and other costs associated therewith shall be paid for by the Contractor.

## **9. CONSTRUCTION SAFETY**

The Contractor shall be solely and completely responsible for conditions of the jobsite, including safety of all persons (including employees and subcontractors) and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours. Safety provisions shall conform to U.S. Department of Labor (OSHA), and all other applicable federal, state, county, and local laws, ordinances, codes, and regulations. Where any of these are in conflict, the more stringent requirement



shall be followed. The Contractor's failure to thoroughly familiarize himself with the aforementioned safety provisions shall not relieve them from compliance with the obligations and penalties set forth therein, see General Conditions, Article 10.

## **10. CONSTRUCTION LIMITS AND AREAS OF DISTURBANCE**

- 10.1 Construction Limits. Where construction easements or property lines, are not specifically called out on the Contract Documents, limit the construction disturbance to ten (10) feet, when measured from the edge of the slope stake grading, or to the adjacent property line, whichever is less. Disturbance and equipment access beyond this limit is not allowed without the written approval of both the Project Representative and the Owner of the affected property. If so approved, disturbance beyond construction limits shall meet all requirements imposed by the landowner; this includes existing roads used and/or improved as well as the construction of new access roads. Special construction, reclamation, or post-construction reclamation or other closure provisions required by the landowner on access roads beyond the construction limits shall be performed by the Contractor at no additional cost to the Owner.
- 10.2 Areas of Disturbances. Approved areas of disturbance are those areas disturbed by construction activities within the construction limits and along designated or approved access routes. Such areas may require reclamation and revegetation operations, including grading to the original contours, top soiling with salvaged or imported topsoil, seeding, fertilizing, and mulching as specified herein. Other areas that are disturbed by the Contractor's activities outside of the limits noted above will be considered as site damage or unapproved areas of disturbance, see General Conditions, Articles 3 and 10. This includes areas selected by the Contractor outside the defined construction limits for mobilization, offices, equipment, or material storage.

## **11. DECONTAMINATE CONSTRUCTION EQUIPMENT**

Power wash all construction equipment entering the project site to prevent the spread of noxious weeds and aquatic invasive species. This applies to all FWP projects, whether or not individual construction permits specifically address cleaning of equipment.

## **12. TREE PROTECTION AND PRESERVATION**

The Contractor and the Owner shall individually inspect all trees within the project construction limits prior to construction. The Owner shall determine which trees are to be removed and which trees are to be preserved. Construction of the grading, utilities and various roadway facilities must not significantly damage the trees root system or hinder it's chances for survival. Reasonable variations from the Contract Documents, as directed by the Project Representative, may be employed to ensure the survival of trees.

### **13. CONSTRUCTION SURVEYS**

The Contractor will be responsible for all layout and construction staking utilizing the Project Representative's existing control and coordinate data for the project. Dimensions and elevations indicated in layout of work shall be verified by the Contractor. Discrepancies between Drawings, Specifications, and existing conditions shall be referred to the Project Representative for adjustment before work is performed. The Project Representative may set location and grade stakes prior to construction; however, it is ultimately the responsibility of the Contractor to check and verify all construction staking for the project.

Existing survey control (horizontal and vertical) has been set for use in the design and ultimately the construction of these improvements. A listing of the coordinates and vertical elevation for each of these control points may be included in the project drawings.

The Contractor will be responsible for preserving and protecting the survey control until proper referencing by the Contractor has been completed. Any survey control obliterated, removed, or otherwise lost during construction will be replaced at the Contractor's expense.

Contractor shall be aware of property pins and survey monuments. Damage to these pins will require replacement of such by a registered land surveyor at no cost to the owner.

The Contractor shall provide construction staking from the Contractor's layouts and the control points. Contractor's construction staking includes at a minimum:

1. Slope stakes located at critical points as determined by the Project Representative.
2. Blue tops every longitudinally and transversely for subgrade and crushed base to verify finish grading of course.
3. Location and grade stakes for drainage features and retaining walls.
4. Location stakes for roadside safety items, permanent and temporary traffic control, and misc. items as determined by the Project Representative.

Original field notes, computations and other records take by the Contractor for the purpose of quantity and progress surveys shall be furnished promptly to the Project Representative and shall be used to the extent necessary in determining the proper amount of payment due to the Contractor.

### **14. MATERIAL SOURCES AND CONSTRUCTION WATER**

The Contractor shall be responsible for locating all necessary material sources, including

aggregates, earthen borrow and water necessary to complete the work. The Contractor shall be responsible for meeting all transportation and environmental regulations as well as paying any royalties. The Contractor shall provide the Project Representative with written approvals of landowners from whom materials are to be obtained, prior to approval.

The Contractor may use materials from any source, providing the materials have been tested through representative samples and will meet the Specifications.

Water for compaction efforts shall be supplied by the Contractor.

## **15. MATERIALS SALVAGE AND DISPOSAL**

Notify the Owner for any material salvaged from the project site not identified in the Contract Documents. The Owner reserves the right to maintain salvaged material at the project site, compensate the Contractor for relocation of salvaged material, or agreed compensation to Owner for material salvaged by the Contractor.

Haul and waste all waste material to a legal site and obey all state, county, and local disposal restrictions and regulations.

## **16. STORED MATERIALS**

Contractor shall use an approved storage area for materials. Materials and/or equipment purchased by the Contractor may be compensated on a monthly basis. For compensation, provide the Project Representative invoices for said materials, shop drawings and/or submittals for approval, and applicable insurance coverage, see General Conditions, Article 9.

## **17. STAGING AND STOCKPILING AREA**

Contractor shall use staging and stockpiling sites for to facilitate the project as approved by the Owner. Contract Documents may show approved staging and stockpiling locations. Notify Owner within 24 hours for approval of staging and stockpiling sites not shown on the Contract Drawings.

## **18. SECURITY**

The Contractor shall provide all security measures necessary to assure the protection of equipment, materials in storage, completed work, and the project in general.

## **19. CLEANUP**

Cleanup for each item of work shall be fully completed and accepted before the item is considered final. If the Contractor fails to perform cleanup within a timely manner the

Owner reserves the right to withhold final payment.

Review these Contract Documents for additional Final Cleanup specifications for specific measures, associated with Contractor responsibilities and final payment.

## **20. ACCESS DURING CONSTRUCTION**

Provide access to all public and private roadways and approaches within the project throughout the construction period.

Provide emergency access at all times within the project throughout the construction period.

## **21. CONSTRUCTION TRAFFIC CONTROL**

The Contractor is responsible for providing safe construction and work zones within the project limits by implementing the rules, regulations, and practices of the Manual on Uniform Traffic Control Devices, current edition.

## **22. SANITARY FACILITIES**

Provide on-site toilet facilities for employees of Contractor and Sub-Contractors and maintain in a sanitary condition.

## **23. CONTRACT CLOSEOUT**

The Contractor's Superintendent shall maintain at the project site, a "Record Set of Drawings" showing field changes, as-built elevations, unusual conditions encountered during construction, and such other data as required to provide the Owner with an accurate "as constructed" set of record drawings. The Contractor shall furnish the "Record Set" to the Project Representative following the Final Inspection of the Project.

The Contractor's final payment will not be processed until the "Record Set" of drawings are received and approved by the Project Representative.

## **24. MEASUREMENT AND PAYMENT**

Review these Contract Documents for additional Measurement and Payment specifications for definitions. Quantities are listed on the Bid Proposal for Payment Items. Additional material quantities, volumes, and measurements may be shown on the Contract Document drawings and/or specifications.

Unit Price quantities and measurements shown on the Bid Proposal are for bidding and contract purpose only. Quantities and measurements supplied, completed for the project, and verified by the Project Representative shall determine payment. Each unit price will be deemed to include an amount considered by the Contractor to be adequate

to cover Contractor's overhead and profit for each bid item.

The Owner or Contractor may make a Claim for an adjustment in Contract Unit Price if the quantity of any item of Unit Price Work performed by the Contractor differs materially and/or significantly (increase or decrease by 50%) from the estimated quantity indicated on the Bid Proposal.

Lump sum bid item quantities will not be measured. Payment for these lump sum bid proposal items will be paid in full amount listed on the Bid Proposal when accepted by the Project Representative, unless specified otherwise.

## **Montana Fish, Wildlife & Parks**

### **SPECIFICATIONS FOR WORK TECHNICAL PROVISIONS**

#### **Incorporation of Montana Public Works Technical Specifications.**

The Technical Specifications as found in Montana Public Works Standard Specifications (MPWSS), Sixth Edition, April 2010 and/or current Addendums or Revisions; are hereby incorporated by reference and made a part of this Contract:

#### **Incorporation of Montana Fish, Wildlife & Parks Technical Specifications and Modifications to MPWSS Technical Specifications.**

In addition to the MPWSS Technical Specifications are the following Montana Fish, Wildlife & Parks Technical Specifications (modifications to MPWSS Technical Specifications).

SECTION 01010 -	Summary of Work
SECTION 01050 -	Field Engineering
SECTION 01400 -	Contractor Quality Control and Owner Quality Assurance
SECTION 01450 -	Mobilization/Demobilization
SECTION 01570 -	Construction Traffic Control
SECTION 01750 -	Final Cleanup
SECTION 01800 -	Erosion and Sediment Control
SECTION 02210 -	Geotextiles
SECTION 02112 -	Removal of Existing Pavement, Concrete Curb, Sidewalk, Driveway and/or Structures
SECTION 02230 -	Street Excavation, Backfill, and Compaction
SECTION 02232 -	Roadway Reconditioning
SECTION 02235 -	Crushed Base Course
SECTION 02238 -	Drain Rock
SECTION 02241 -	Barrier Rocks
SECTION 02810 -	Fencing
SECTION 02842 -	Wire Jack-Leg Fence
SECTION 02910 -	Seeding
SECTION 02930 -	Signing
SECTION 03321 -	Curb Stops
SECTION 03410 -	Pre-Cast Vault Latrine

**SECTION 01010**  
**SUMMARY OF WORK**

All applicable portions of this specification section in the MPWSS shall apply with the following additions, deletions and/or modifications.

**PART 1      GENERAL**

**1.3      WORK SEQUENCE**

Add the following:

- E.    Excavation to be monitored by Archaeologist hired by Owner. Excavation of areas of primary concern will be completed in 3 consecutive business days in first 2 weeks of project. Notify Owner within 48 hours of scheduled excavation.
- F.    Maintain existing boat ramp and area within 100' of ramp available for public access until new boat ramp and day-use parking area are completed per the contract documents. Obtain approval from the Project Representative to commence work on camping area which will remove access to existing boat ramp.

**1.4      CONTRACTOR USE OF PREMISES**

Add the following:

- G.    Utilize all areas within the limits of construction for Contractor staging and stockpiling of materials.

**END OF SECTION 01010**

**SECTION 01050**  
**FIELD ENGINEERING**

All applicable portions of this specification section in the MPWSS shall apply with the following additions, deletions and/or modifications.

**PART 3      EXECUTION**

Add the following:

**1.3      CONSTRUCTION SURVEY**

- A. Engineer will provide survey control (northing/easting), benchmarks (local datum), and grade stakes for all designed alignments and profiles, as shown on the project drawings.
- B. Contractor will be responsible for setting slope stakes at 50' intervals on tangent sections and at 25' on horizontal curves, based on Owner provided control and alignment staking. Set slope stakes at PC and PT locations as well as the beginning and ending of project stationing. Limit grade stake tolerances to +/-0.04'.

**PART 4      MEASUREMENT AND PAYMENT**

Add the following:

- A. Contractor construction surveying will not be measured for payment, and is considered incidental to other bid items in this contract.

**END OF SECTION 01050**



## **SECTION 01400**

### **CONTRACTOR QUALITY CONTROL AND OWNER QUALITY ASSURANCE**

All applicable portions of this specification section in the MPWSS shall apply with the following additions, deletions and/or modifications.

#### **PART 3 EXECUTION**

##### **3.1 GENERAL**

C. Replace with the following:

The Contractor is responsible for providing all quality assurance testing by an independent testing agency. The Contractor will pay for all quality assurance testing by an independent testing agency.

#### **PART 4 MEASUREMENT AND PAYMENT**

Replace with the following:

##### **4.1 PAYMENT FOR TESTING**

The Contractor will pay for all quality control testing. The Contractor will pay for all quality assurance testing by an independent testing agency. The Contractor will pay for all associated re-testing efforts (both quality control and quality assurance).

**END OF SECTION 01400**

## **SECTION 01450**

### **MOBILIZATION/DEMOBILIZATION**

Added Section.

#### **PART 1                    GENERAL**

##### **1.1      DESCRIPTION**

- A. This item shall consist of the preparatory work and operations necessary performed by the Contractor for the movement of personnel, equipment, supplies, and incidentals to and from the work site. The work includes those actions necessary for obtaining necessary permits required for mobilization; for the establishment of all offices and facilities necessary to work on the project; for premiums on contract bonds; for insurance for the contract; and for other work on the various items on the project site. Mobilization costs for subcontracted work shall be considered to be included.
- B. Contractor's cost for administration, bonding, insurance, and site documents shall be included in mobilization and shall not be paid as a separate item.
- C. All equipment moved to the project sites shall be in good mechanical condition and free of fuel, oil, lubrication, or other fuel leaks. The Contractor shall immediately remove any equipment potentially or actually discharging environmentally damaging fluids.
- D. All equipment moved to the project sites shall be thoroughly cleaned before it is brought to the sites to prevent the introduction of weed seeds. Equipment removed from the sites may not be returned to the sites again until it is thoroughly cleaned again.

#### **PART 2                    PRODUCTS – NOT USED**

#### **PART 3                    EXECUTION – NOT USED**

#### **PART 4                    MEASUREMENT AND PAYMENT**

##### **4.1      MEASUREMENT**

- A. There will be no direct measurement of this item.

##### **4.2      PAYMENT**

- B. Partial payments for mobilization/demobilization will be made based on the lump sum bid price as follows:

- 25% of the amount bid for mobilization/demobilization when the Contractor has moved on-site and begun construction activities.
- 50% of the amount bid for mobilization/demobilization when 25% of the contract amount (exclusive mobilization/demobilization) has been completed.
- 75% of the amount bid for mobilization/demobilization when 50% of the contract amount (exclusive mobilization/demobilization) has been completed.
- 100% of the amount bid for mobilization/demobilization when 75% of the contract amount (exclusive mobilization/demobilization) has been completed.

**END OF SECTION 01450**

## **SECTION 01570**

### **CONSTRUCTION TRAFFIC CONTROL**

All applicable portions of this specification section in the MPWSS shall apply with the following additions, deletions and/or modifications.

#### **PART 2 PRODUCTS**

##### **2.1 TRAFFIC CONTROL DEVICES**

Add the following:

- D. Provide Type III barricades at all roadways closed to public access. Erect “Road Closed” or “Road Closed To Thru Traffic” sign(s) on all Type III barricades.
- E. At areas designated closed to public access that are wider than a standard roadway width (16’), provide orange tubular markers (28” height) that delineate the closed area. Yellow ribbon caution tape may be used between tubular markers.

#### **PART 4 MEASUREMENT AND PAYMENT**

Delete this section and replace with the following.

##### **4.1 MEASUREMENT AND PAYMENT**

- A. Construction traffic control will not be measured for payment, and is considered incidental to other bid items in this contract.

**END OF SECTION 01570**

## **SECTION 01750**

### **FINAL CLEANUP**

Added Section.

#### **PART 1 GENERAL**

##### **1.1 DESCRIPTION**

- A. This work consists of final cleanup of the project site prior to final acceptance.

#### **PART 2 PRODUCTS – NOT USED**

#### **PART 3 EXECUTION**

##### **3.1 CONTRACTOR RESPONSIBILITIES**

The contractor shall be responsible for final clean up at the end of the project to a level satisfactory to the owner. All construction debris, no matter how small, shall be collected and removed from the site. All wheel ruts shall be filled in and be leveled to match the adjacent grade and material. Re-seeding or re-sodding, or other re-surfacing may be necessary to repair any construction related impacts or damage.

All survey markings, stakes, temporary paint marks, flagging and other devices shall be removed regardless of who installed them. All excess pavement, concrete, gravel, soil, or other construction materials not intended for permanent use shall be removed.

All final slopes shall be dressed manually to remove woody debris, accumulated trash and oversized material. Any new slope or topsoil surfaces shall be hand raked to provide a uniform appearance. The contractor shall dress all gravel, pavement and concrete edges to eliminate abrupt edges and provide a smooth transition. All construction related temporary sediment control devices shall be removed as soon as practical.

#### **PART 4 MEASUREMENT AND PAYMENT**

##### **4.1 PAYMENT**

Unless specifically noted otherwise, all final cleanup work shall be incidental to other work items in the contract and no separate payment shall be made.

**END OF SECTION 01750**

## SECTION 01800

### EROSION AND SEDIMENT CONTROL

Added Section.

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. This work consists of furnishing, constructing, and maintaining permanent and temporary erosion control and sediment control measures as shown on the project drawings and/or project related construction permits.

#### PART 2 PRODUCTS

##### 2.1 GENERAL

- A. Temporary and erosion control products utilized include but are not limited to backfill material; berms; brush barriers; erosion control blankets, bales, wattles, logs, rolls; erosion control culvert pipe; detention basins; fertilizer; geotextile; mulch; plastic lining; riprap; sandbags; seed; silt fence; and water.

##### 2.2 EROSION CONTROL WATTLES

- A. Where designated, provide a sediment retention product made from straw and coconut fiber reinforced with a 100% bio-degradable netting. Use wood stakes to secure sediment retention product in place, spacing per the manufacturer's recommendations. An acceptable product is *Sediment Stop*, manufactured by *North American Green*, or approved equal.

##### 2.2 EROSION CONTROL BLANKETS

- A. Where designated, provide a sediment retention product made from straw and coconut fiber reinforced with a 100% bio-degradable netting. Use wood stakes to secure sediment retention product in place, spacing per the manufacturer's recommendations. An acceptable product is *BioNet® S150BN™*, manufactured by *North American Green*, or approved equal.

#### PART 3 EXECUTION

##### 3.1 INSTALLATION

- A. Provide permanent and temporary erosion control measures to minimize erosion and sedimentation during and after construction according to the contract erosion control plan, environmental permits, and as directed by the Project Representative. These erosion control measures shall be designed, implemented, and maintained by the

- Contractor in accordance with Best Management Practices (BMPs) to control erosion and sediment release from the work site.
- B. Install permanent and temporary erosion control measures according to the Storm Water Pollution Prevention Plan (SWPPP), if applicable, approved construction permits, and erosion control drawings.
  - C. When erosion control measures are not functioning as intended, immediately take corrective action.

## **PART 4                      MEASUREMENT AND PAYMENT**

### **4.1      MEASUREMENT AND PAYMENT**

- A. Erosion Control Wattles and Silt Fence will be measured by the linear foot (LF).

**END OF SECTION 01800**

## SECTION 02110

### GEOTEXTILES

All applicable portions of this specification section in the MPWSS shall apply with the following additions, deletions and/or modifications.

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

Add the following:

This work also includes the installation of woven geotextile on prepared subgrade, as identified on the project drawings, or as directed by the Project Representative.

##### 1.2 REFERENCES

C. Delete this section and add the following:

Provide geotextile meeting the strength requirements from Table 1.

**Table 1. High Survivability Woven Geotextile Requirements**

	TEST METHODS	UNITS	REQUIREMENTS
Grab Elongation	ASTM D 4632	%	>50
Grab Strength	ASTM D 4632	lbs	315
Sewn Seam Strength	ASTM D 4632	lbs	285
Tear Strength	ASTM D 4533	lbs	110
Puncture Strength	ASTM D 4833	lbs	110
Permittivity	ASTM D 4491	Sec <sup>-1</sup>	≥0.02
Apparent Opening Size	ASTM D 4751	Sieve Size (in)	#30 (≤0.024)
Ultraviolet Stability (Retained Strength)	ASTM D 4355	%	≥50 after 500 hours of exposure

**END OF SECTION 02110**



## **SECTION 02112**

### **REMOVAL OF EXISTING PAVEMENT, CONCRETE CURB, SIDEWALK, DRIVEWAY AND/OR STRUCTURES**

All applicable portions of this specification section in the MPWSS shall apply with the following additions, deletions and/or modifications.

#### **PART 1                    GENERAL**

##### **1.1      DESCRIPTION**

A.      Add the following:

The work also consists of the removal and disposal of existing wire fence as designated on the project drawings.

#### **PART 3                    EXECUTION**

##### **3.1      GENERAL**

Add the following:

- D.      Remove and dispose existing wire fence as shown in the project drawings or as directed by the Project Representative. Dispose all removed materials off project site and obey all State, County, and local disposal restrictions and regulations. All removed materials become property of the Contractor.

#### **PART 4                    MEASUREMENT AND PAYMENT**

Add the following:

##### **4.5      EXISTING WIRE FENCE REMOVAL AND DISPOSAL**

- A.      Existing Wire Fence Removal and Disposal will be measured by the linear foot (LF).

**END OF SECTION 02112**

## SECTION 02230

### STREET EXCAVATION, BACKFILL AND COMPACTION

All applicable portions of this specification section in the MPWSS shall apply with the following additions, deletions and/or modifications.

#### PART 3 EXECUTION

##### 3.1 CLEARING AND GRUBBING

Add the following:

On site burning is allowed. Obtain all necessary burning permits if cleared and grubbed material is burned on site.

If Contractor elects not to burn, remove all clearing and grubbing debris off the project site and obey all state, county, and local disposal restrictions and regulations. All stumps within construction limits shall be grubbed under this contract.

##### 3.4 EXCAVATION

Add the following:

Sheeting, Shoring, and Bracing: Except where trench banks are cut back on a stable slope, provide and maintain all sheeting, shoring, and bracing necessary to protect workers, and to protect adjoining grades and structures from caving, sliding, erosion or other damage in accordance with Occupational Safety and Health Standards (29 CFR Part 1926 – Construction Standards for Excavations), the Site Specific Health and Safety Plan, and all other applicable codes and governing authorities.

#### PART 4 MEASUREMENT AND PAYMENT

##### 4.1 METHOD OF MEASUREMENT AND PAYMENT

Delete this section and add the following:

###### A. CLEARING AND GRUBBING

1. Clearing and grubbing will not be measured for payment and is considered incidental to other work items in this Contract.

###### B. EXCAVATION AND EMBANKMENT

1. Excavation and embankment will be measured and paid by the lump sum (LPSM).

**END OF SECTION 02230**

## **SECTION 02232**

### **ROADWAY RECONDITIONING**

Added Subsection:

#### **PART 1 GENERAL**

##### **1.1 DESCRIPTION**

- A. This work consists of reconditioning roadways by linear grading, reshaping, and drainage ditch rehabilitation, and drainage improvements as designated on the project drawings or as directed by the Project Representative.

#### **PART 2 EXECUTION**

##### **2.1 ROADWAY RECONDITIONING**

Recondition the roadway by performing linear grading operations to crown, or cross slope the roadway to drain as shown on the project drawings. Blade roadway shoulder and ditch slopes to assist drainage and salvage roadway surfacing material. Do not place topsoil on the roadway surface from linear grading operations.

Conserve excavation from roadway reconditioning construction to remedy perched culvert areas. Backfill and compact embankment for any perched culvert scheduled for cleaning and/or culvert outlet energy dissipators.

##### **2.2 CLEANING CULVERTS**

Clean all cross drain and approach drainage culvert inlets and outlets as part of the roadway reconditioning operations. Remove all debris, sediment, and obstructions and re-establish flow line at culvert inlet/outlet invert.

Flush each culvert with water to remove all sediment accumulated inside. Project Representative will inspect inside each culvert scheduled for cleaning.

#### **PART 3 MEASUREMENT AND PAYMENT**

##### **3.1 METHOD OF MEASUREMENT AND PAYMENT**

Roadway reconditioning will be measured and paid for by the linear foot (LF).

Cleaning culverts will not be measured and is considered incidental to other work items in this Contract.

**END OF SECTION 02232**

## SECTION 02235

### CRUSHED BASE COURSE

All applicable portions of this specification section in the MPWSS shall apply with the following additions, deletions and/or modifications.

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. Add the following:

The work also consists of installing gravel camp unit living spaces as designated on the project drawings.

#### PART 2 PRODUCTS

##### 3.3 FIELD DENSITY REQUIREMENTS

Add the following:

- D. The Contractor is responsible for providing all compaction testing by an independent testing agency.
- E. Compaction testing locations and frequency will be performed as follows:

Compaction Testing	Location*	Frequency
Subgrade and Subbase	None**	None**
Crushed Base Course	Access Road (centerline)	4
	Camp Spurs	2 (One each cul-de-sac)
	Parking Area	1

\* Station/Offset determined by Engineer

\*\*Proof roll subgrade only for observation by Engineer prior to base course placement.

#### PART 4 MEASUREMENT AND PAYMENT

Add the following:

##### 4.4 GRAVEL CAMP UNIT LIVING SPACE

- A. Gravel Camp Unit Living Space will be measured by the each (EACH).

**END OF SECTION 02235**

## SECTION 02238

### DRAIN ROCK

Added Section.

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. This work consists of furnishing, placing, and finishing drain rock placement at designated areas on the project drawings or as directed by the Project Representative.

#### PART 2 PRODUCTS

##### 2.1 DRAIN ROCK GRADATION

- A. Furnish drain rock that is a crushed aggregate as shown in Table 1:
- B. The drain rock material must be non-plastic. A minimum of 70 percent by weight of the drain rock must have at least one fractured face.

**Table 1. Drain Rock Gradation**

Sieve Size	Percent Passing
6 inch	100
¾ inch	0-10
No. 4	0-5

#### PART 3 EXECUTION

##### 3.1 GENERAL

- A. Install drain rock according to the project drawings or as directed by the Project Representative.

#### PART 4 MEASUREMENT AND PAYMENT

##### 4.1 GENERAL

- A. Drain rock placement be measured and paid by the linear foot (LF).

**END OF SECTION 02238**

**SECTION 02241**  
**BARRIER ROCKS**

Added Section.

**PART 1      GENERAL**

**1.1      DESCRIPTION**

- A.      This work consists of furnishing and placing barrier rocks at designated areas on the project drawings or as directed by the Engineer.

**PART 2      PRODUCTS – NOT USED**

**PART 3      EXECUTION**

**3.1      GENERAL**

- A.      Furnish hard, durable, angular barrier rock that is resistant to weathering and water action and free of organic or other unsuitable material. Do not use shale, rock with shale seams, or other fissured rock that may break into smaller pieces in the process of handling and placing.
- B.      Furnish barrier rocks that approximately measure 8 cubic feet (2.5 – 3.5 feet in nominal diameter as measured on the long axis). Backfill around embedded barrier rocks by tamping with hand tools and/or mechanical equipment. Space barrier rocks at 5 feet clearance as measured from edge to edge.
- C.      Install barrier rocks according to the project drawings or as directed by the Engineer.

**PART 4      MEASUREMENT AND PAYMENT**

**4.1      PAYMENT**

- A.      Barrier rock placement will be measured and paid for by the each (EACH).

**END OF SECTION 02241**

## SECTION 02810

### FENCING

#### Added Section.

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. This work consists of Owner furnished and/or furnishing, erection, and placement of new fencing per the drawings and specifications. This work also consists of repairing existing wire fence.

#### PART 2 PRODUCTS

##### 2.1 GENERAL

- A. Barbed wire shall be zinc-coated, steel barbed wire meeting the requirements of ASTM A-121. Breaking strength of strand wire shall be not less than 950 pounds. Barbs shall be uniformly spaced from 4 to 5 inches apart. Minimum weight of zinc coating shall be Class I. Wire shall consist of two twisted strands of 12 ½ gauge wire. "Red Brand" and "OK Brand Premium" are examples of wire that meet ASTM A-121. **Wire breaking strength and coating certification shall be provided to the Project Manager.** Install all wire on non-FWP owned parcel side of posts.
- B. Barbless wire shall be two smooth twisted strands of 12 ½ gauge wire: zinc coated steel meeting requirements of ASTM A-121 or equal. Breaking strength of a strand of wire shall be not less than 950 pounds, minimum weight of zinc coating shall be Class I. Install all wire on non-FWP owned parcel side of posts.
- C. Woven wire shall have metallic coating Type Z, Class 1 and be No. 12 ½ Grade 60, or, have metallic coating Type Z, Class 3 and be No 14 Grade 125. All woven wire shall meet or exceed the requirements of ASTM A116. Install all wire on non-FWP owned parcel side of posts.
- D. Brace panel wire shall be barbless, smooth 9 gauge **soft** wire meeting requirements of ASTM A-641. It will be used for constructing braces and panels, tying to anchors, etc.
- E. Staples. Wire staples of the barbed U-shaped type shall be used to fasten the wire fencing to the wooden posts. They shall be not less than 9 gauge galvanized, 1-3/4 inches long.



- F. Nails. Shall be 40 d common galvanized.
- G. Fence clips shall be not lighter than 12 ½ gauge, galvanized. They shall be used to fasten the wire to metal posts.
- H. Where designated, stays shall be 30” long twisted wire fence specifically manufactured for use as fence stays and made from #9 gauge galvanized smooth wire.
- I. Metal Posts. Metal posts shall meet the requirements of ASTM A-702 and be American manufactured. Painting shall be in accordance with good manufacturing practice. Same paint pattern shall be used throughout project site requiring installation of new metal posts. **Posts shall be 5½ feet long.** The metal shall be good commercial quality steel with maximum carbon content of 0.82%. Posts shall be tee section and shall have corrugations, knobs, notches, holes, or studs so placed and constructed as to engage a substantial number of fence line wires in proper position.

Each line post shall have a steel anchor plate weighing not less than 0.67 pounds, tapered to facilitate driving and securely fastened in such a position that its top edge will be two to three inches below ground when the post is driven to the prescribed depth. **Post shall weigh 1.33 lbs. per L.F. of post.**

- J. Wood Posts and Brace Rail. Posts and brace rail shall be made from western larch, lodgepole pine, ponderosa pine, or douglas-fir. They shall have the bark removed, be well seasoned, sound, and straight-grained. They shall be finished round. **Panel posts** shall be 5 inch minimum diameter and 7 feet in length. **Line posts** shall be 5 inch minimum diameter and 7 feet in length, or as specified in the project drawings. All posts shall be treated with a solution conforming to AWPAs standards. Penetration shall be at least ½ inch. Post shall be fully treated. Posts that are to be driven shall be tapered and treated. **Brace rail** shall be a minimum 4 inch diameter by 8 feet long, or as specified in the project drawings. All brace rail shall be fully treated conforming to AWPAs standards. **Certification of AWPAs treatment shall be provided to the Project Manager.**
- K. Wood Split Rails. Wooden split rails shall be made from western larch, lodgepole pine, ponderosa pine, or douglas-fir. They shall have the bark removed, be well seasoned, sound, and straight-grained. They shall be finished half round. **Wood rails** shall be 4½ inch minimum diameter and 8 feet in length. All rails shall be treated with a solution conforming to AWPAs standards. Penetration shall be at least ½ inch. All wood rail shall be fully treated conforming to AWPAs standards. **Certification of AWPAs treatment shall be provided to the Project Manager.** Fasten rails to posts with 8” TimberLok® screws, or approved equal.

- L. Brace Panels. Brace panels shall be placed at corners, endpoints and when run exceeds **30 rods or 500 feet**. Where the run requires a single brace, it shall be placed to split the difference when appropriate. Brace panels shall be constructed as depicted in drawings and shall provide for strong anchorage points and shall be aligned with fence line within a tolerance of 2 degrees.

- M. Gates and Steel Panels. Wire gates shall be 12' (minimum) in width, or as designated on the project drawings. Gates shall be located in the field by the Engineer.

Where designated, wire gates and associated panels shall have the same number of strands of barbed wire as the fence line they are in, with a vertical spacing the same as the fence line they are in. Wire gates 14' wide and less shall have 2 wood stays, and gates over 14' wide shall have 3 wood stays, equally spaced across the gate. Stays shall be minimum 2½" diameter treated wood, and shall be tall enough to support all the fence wires at the correct height. Each wire gate shall have a new single panel on each side and a mechanical over-center gate closer. Wire gates in jackleg fences shall have four strands of barbed wire. Posts and brace rails shall be the same as specified for line fence panels and corners.

Where designated, install pre-fabricated steel panel gates (various lengths) as shown on the project drawings. **Panel gates shall be powder coated brown or green in color, with 6-Bar, 2" diameter tubing, 16 gauge high tensile steel.** Provide 6"x8' treated posts for each single panel brace on each side of panel gate. Provide galvanized chain long enough to wrap around gate and adjacent brace panel for locking closure.

- N. Stream Crossings. Stream crossings shall be minimum 20' wide and located 4' minimum on each side of the top of stream bank. Post and brace rail shall be the same as specified for line fence panels and corners. Stream crossings shall have 5 strands of smooth wire with a minimum of 6 metal stays per rod, spaced equally along the length of the PVC pipe described below. Stays shall be 30" long twisted wire specifically manufactured for use as fence stays and made from #9 gauge galvanized smooth wire.

Extend stays down past bottom wire attached to posts, creating a hinge point to pass debris. Thread bottom ends of stays through 1½" diameter PVC pipe suspended parallel to bottom wire. Bottom wire to be 1 foot above water surface.

Each stream crossing shall have a new single panel and mechanical over-center closure on each side.

- O. Minor Drainage Channels are differentiated from depressions by having sandy gravel or cobble bottoms. Such channels may or may not have flowing water year round. Minor channels may be fenced over without a stream crossing gate at the discretion of

the Project Manager. Such channels shall have NO POSTS placed in the channel, and posts on either side shall be equally spaced from the edge of the channel. PVC pipe shall be hung under the fence at the channel in the same manner as described in Stream Crossings, to prevent livestock passage.

- P. Deadmen anchors shall be used at grade depressions. They shall consist of a plate or disc of 10 gauge or thicker mild steel of 12-inch diameter. A No. 5 rebar shall be welded in the center and a loop formed in the other end to accept the tie wire. Rebar length shall be 30 inches after the loop is formed.

Alternately, two steel fence posts may be driven in the ground at an angle such that the ends above the ground cross at the low point. Wire shall be securely attached to the two posts and used to anchor the fence. Duckbill anchors are also approved. Other anchor types may be accepted upon approval of the Engineer or Project Manager.

Anchor wires shall be tied such that all wire is above the soil surface. No anchor wire shall be buried. If any part of the deadman projects out from the fence line above ground, it shall be cut off no more than 4" from the anchor wire attachment. No sharp edges shall remain on cut ends.

## **PART 3 EXECUTION**

### **3.1 CLEARING AND GRUBBING**

- A. "Clearing" shall consist of the falling of trees greater than 3 inches diameter at chest height, delimbing them, and cutting into six-foot sections. Clearing shall also include the disposal of stumps, brush, windfalls, limbs, sticks, piles of sawdust, rubbish, debris, vegetation, and other objectionable material occurring within the clearing limits or which interfere with excavation or embankment.
- B. "Grubbing" shall consist of the removal from the ground and the disposal of roots, stumps, together with duff, matter, roots, and debris from the grubbing limits.
- C. Construction methods for clearing and grubbing operations are as follows:
  - 1. No stumps or roots shall remain more than 4 inches above the ground along the fence line.
  - 2. Low hanging branches and unsound or unsightly branches on trees or shrubs designated to remain shall be removed as directed. Branches of trees extending over the fence line shall be trimmed to give a clear height of 8 feet above the ground along the fence line. Width of clearing for fence line shall be 4 feet.

### **3.2 FENCE INSTALLATION**

- A. Post holes and excavations for footings and anchors shall be excavated on the lines established by the Engineer to the depths and cross-sections shown on the standard drawings. **All fence post hole excavations shall be on FWP property or easement, 12" from the surveyed property boundary line, marker, or monument.** Do not disturb any survey property corner monument or marker during fence installation. Leave all line-of-sight survey marker t-posts in place.
- B. Wooden posts may be driven when so prepared and any damaged posts shall be repaired or rejected at the discretion of the Project Manager. In all cases where posts are repaired, the damaged area or split shall be given **two coats of preservative material** approved by the Project Manager. Posts shall be plumb when set. All posthole filling and backfilling work shall be in six-inch layers and each layer shall be solidly tamped and compacted as it is placed.
- C. Posts that are cut or trimmed for any valid reason shall be given **two coats of preservative material** approved by the Engineer. Braces shall be securely nailed to terminal and brace posts. **Brace to post joint shall be coped or notched.** No square to round joint accepted.
- D. Deadmen or anchors will be used at grade depressions or other places where the vertical space from the ground to the bottom fence wire has exceeded the design value within a one rod distance.

In such situations where the bottom of the depression is an intermittent stream channel with a sandy gravel or cobble bottom or an active ditch, the depressions shall be treated as a Minor Drainage Channel. Such channels shall have **NO POSTS PLACED IN THE CHANNEL**, and posts on either side shall be equally spaced from the edge of the channel. PVC pipe shall be hung under the fence at the channel in the same manner as described in Stream Crossings, to prevent livestock passage.

- E. Brace panels shall be installed at angle points, corners, gates, or wherever a break in the terrain occurs. However, in no case shall brace panels be more than **30 rods or 500 feet apart**. See Table 1 for brace panel installation requirements. Brace wire shall be tight when twisted. Double wrap the wire at brace post tie-off. Cross the braces with the end of the wires to be tied off. **Barbed wire fence wire shall be tied off at each brace.**
- F. Wood line posts shall be installed **every tenth post (165 feet)** or evenly spaced on **runs longer than 15 rods (247 feet)**. In no case shall a line post be used as a substitute in a situation that would typically require a single, or double, brace.

Table 1. Brace Panel Installation Requirements

Panel Type	No. of Panels	Location Applications	
		Horizontal	Vertical
Single	1	In Line, Each side of gates	Constant Grade
Double	2	Angle points < 90°	Grade Breaks < 45°
Corner	4	90° Corners	Grade Breaks > 45°

- G. All posts shall be plumb and solidly set in place after backfilling or driving has been completed.
- H. Stretching by a motor vehicle will not be permitted; the power must be by or through a mechanical stretcher or device designed for such use.
- I. Fence line shall be straight and square between corner points.
- J. Fence clips shall be hooked and **both ends twisted all the way around fence wire.**
- K. Tension shall be applied in accordance with wire manufacturer's recommendations.
- L. Fence wire shall be wrapped around terminal posts and fastened to itself with at least four turns. Fence wire, in general, shall be placed on the side of the post opposite the site but on curves shall be placed so the force is against the post. At grade depressions and alignment angles, where stresses tending to pull posts from the ground are created, the wire fence shall be snubbed or guyed at the critical points by brace wire attached to each horizontal line of fence wire and the end of the combined strands being firmly attached to a "deadman" buried not less than two feet in the ground, or to an approved "anchor" at a point which will serve best to resist the pull of the wire fence. "Deadmen" also may be fastened to posts. Fence wire and brace wire shall be installed without nicks or significant abrasions. Nicks or abrasions that may lead to pre-mature wire breaks shall be rejected by the Project Manager and replaced at no cost by the Contractor.
- M. U-shaped staples shall be driven diagonally across the wood grain so that both points do not enter between the same grain. In depressions where wire up-lift occurs, staples shall be sloped slightly upward, against the pull of the wire. On level ground and over knolls, staples shall be sloped slightly downward. Wire shall be stapled tightly at corner, end, and pull posts. **In no case shall staples be driven so tight to limit future wire tensioning, or as to damage the wire.**

- N. A cross-fence, not the property of the Owner, shall **not** be fastened to the Owner's fence but shall be terminated, in a workmanlike manner, adjacent thereto.
- O. Upon completion, the fence shall be true to line and grade; **all posts shall be vertical and firm** and all wire shall be taut and the completed fence shall be completely acceptable in all respects. No openings shall be left that will permit stock to pass through the fence.
- P. Exterior boundary fences shall have owner-supplied 4" x 12" boundary signs attached no more than 500 feet apart and 2 at every corner panel. Signs shall be securely fastened to posts, rails or between fence wires as determined by the Project Manager.

Additional owner-supplied 12" x 18" aluminum signs shall be installed at all exterior gates and corners where designated by the Project Manager. The cost of installing such signs shall be subsidiary to the project and shall not constitute a pay item and shall be considered incidental thereto and no payment shall be made for it.

- Q. Weed Control: All equipment used during construction shall be thoroughly washed both inside, outside and underneath of all pickup boxes, trailers, trucks, etc. before entrance to the project area. Vehicles used to commute to and from job site shall be kept clean so as not to transport weed seed to project area. This cost shall be subsidiary to the project and shall not constitute a pay item and shall be considered incidental thereto and no payment shall be made for it.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.1 BASIS OF MEASUREMENT**

- A. All types of fence will be measured by the linear foot (or rod) complete in place, on its actual alignment, **inclusive** of brace panels, and corners, and **exclusive** of gates and associated gate panels. The measurement will be made on the fence line along the ground, from end post to end post, less the length of gates and gate panels, the intent being to measure the actual length of fence in place.

If it is necessary, in crossing depressions, to install a double section of fence, vertically, this extra section will be measured for payment.

- B. Gates will be measured on a per each basis, **including 2 single panels**. In the case of double wildlife gates, this shall include both gates and three single braces as a single unit.
- C. Pedestrian Turnstile will be measured on a per each basis, **including 2 single panels**.

- D. Stream Crossings shall be paid as wire gates.
- E. Deadmen anchors, minor drainage channels, tree anchors, and any line clearing required **shall be subsidiary to the fence and shall not constitute pay items and shall be considered incidental to fence construction.**
- F. For the purpose of change orders to the contract, individual unit prices shall be provided for single (two-post) braces, double (three post) braces, two panel corners, four panel corners, and wire gates.

#### 4.2 BASIS OF PAYMENT

- A. All types of fence shall be paid for per foot (or rod) basis, measured as specified above.
- B. Gates and Pedestrian Turnstiles will be paid for on a unit price per each basis.

**END OF SECTION 02810**

## SECTION 02842

### WIRE JACKLEG FENCE

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. This work consists of furnishing, erection, and placement of new fencing per the drawings and specifications.

#### PART 2 PRODUCTS

##### 2.1 GENERAL

- A. Barbed wire shall be zinc-coated, steel barbed wire meeting the requirements of ASTM A-121. Breaking strength of strand wire shall be not less than 950 pounds. Barbs shall be uniformly spaced from 4 to 5 inches apart. Minimum weight of zinc coating shall be Class I. Wire shall consist of two twisted strands of 12 ½ gage wire. "Red Brand" and "OK Brand Premium" are examples of wire that meet ASTM A-121. **Wire breaking strength and coating certification shall be provided to the Project Manager.**
- B. Barbless wire shall be two smooth twisted strands of 12 ½ gage wire: zinc coated steel meeting requirements of ASTM A-121 or equal. Breaking strength of a strand of wire shall be not less than 950 pounds, minimum weight of zinc coating shall be Class I.
- C. Staples. Wire staples of the barbed U-shaped type shall be used to fasten the wire fencing to the wooden posts. They shall be not less than 9 gage galvanized, 1-3/4 inches long.
- D. Wood jack leg posts shall be made from western larch, lodgepole pine, ponderosa pine, or douglas-fir. They shall have the bark removed, be well seasoned, sound, and straight-grained. They shall be finished round. Jack legs shall be 5 inch minimum diameter, minimum 52" long. Posts shall be machined, cut, and notched for universal matching. All posts shall be treated with a solution conforming to AWPAs standards. Penetration shall be at least ½ inch. Treatment shall extend the entire length of the post per AWPAs standards. **Certification of AWPAs treatment shall be provided to the Project Manager.**
- E. Wood jack leg brace rails shall be made from western larch, lodgepole pine, ponderosa pine, or douglas-fir. They shall have the bark removed, be well seasoned, sound, and straight-grained. They shall be finished round. Rails



shall be 4 inch minimum diameter, minimum 12 feet long. All rails shall be fully treated conforming to AWPAs standards. **Certification of AWPAs treatment shall be provided to the Project Manager.**

- F. Fasteners shall be 8" TimberLok<sup>®</sup> heavy duty wood screws or approved equal. Two screws required per jack connection, one screw required per rail connection. Split rails shall be attached with 6" TimberLok<sup>®</sup> heavy duty wood screws or approved equal. No screw or nail protrusions are allowed.
- G. Wood Split Rails. Wooden split rails used to reinforce brace jacks shall be made from western larch, lodgepole pine, ponderosa pine, or douglas-fir. They shall have the bark removed, be well seasoned, sound, and straight-grained. They shall be finished half round. **Wood split rails** shall be 4½ inch minimum diameter and 52 inches in length. All rails shall be treated with a solution conforming to AWPAs standards. Penetration shall be at least ½ inch. All wood rail shall be fully treated conforming to AWPAs standards. **Certification of AWPAs treatment shall be provided to the Project Manager.**
- H. Deadmen anchors shall be used at grade depressions. They shall consist of a plate or disc of 10 gauge or thicker mild steel of 12-inch diameter. A No. 5 rebar shall be welded in the center and a loop formed in the other end to accept the tie wire. Rebar length shall be 30 inches after the loop is formed.

Alternately, two steel fence posts may be driven in the ground at an angle such that the ends above the ground cross at the low point. Wire shall be securely attached to the two posts and used to anchor the fence. Duckbill anchors are also approved. Other anchor types may be accepted upon approval of the Engineer or Project Manager.

Anchor wires shall be tied such that all wire is above the soil surface. No anchor wire shall be buried. If any part of the deadman projects out from the fenceline above ground, it shall be cut off no more than 4" from the anchor wire attachment. No sharp edges shall remain on cut ends.

## **PART 3 EXECUTION**

### **3.1 CLEARING AND GRUBBING**

- A. "Clearing" shall consist of the falling of trees greater than 3 inches diameter at chest height, delimbing them, and cutting into six-foot sections. Clearing shall also include the disposal of stumps, brush, windfalls, limbs, sticks, piles of sawdust, rubbish, debris, vegetation, and other objectionable material occurring within the clearing limits or which interfere with excavation or embankment.

- B. "Grubbing" shall consist of the removal from the ground and the disposal of roots, stumps, together with duff, matter, roots, and debris from the grubbing limits.
- C. Construction methods for clearing and grubbing operations are as follows:
  - 1. No stumps or roots shall remain more than 4 inches above the ground along the fence line.
  - 2. Low hanging branches and unsound or unsightly branches on trees or shrubs designated to remain shall be removed as directed. Branches of trees extending over the fence line shall be trimmed to give a clear height of 8 feet above the ground along the fence line. Width of clearing for fence line shall be 6 feet.

### 3.2 FENCE INSTALLATION

- A. All boundary fences shall be located one foot inside actual boundary line on the owner's property.
- B. All runs of jackleg fence shall start and end with a conventional 'H' post wire brace panel. Such panel may be a gate brace or a regular wire fence brace and will be paid for as part of the adjacent fencing or gate. Wires shall be fastened securely to end panel and fastened securely to brace and jack posts to resist pulling staples.
- C. Jacklegs shall be set in place perpendicular to the ground.
- D. Rails in brace panels shall be coped and attached to the posts. If coping is done in the field, coped area shall be painted with a wood preservative that meets AWPAs standards.
  - 1. Starting panels, ending panels, and every 10th panel, shall be braced diagonally.
  - 2. Jacklegs shall be spaced 10 feet apart and brace rail lengths shall be 12 feet minimum.
  - 3. Brace rails shall be attached to the jack legs and to each other at the center of the overlap with heavy duty wood screws.
  - 4. Wooden split rails used to reinforce brace jacks shall be attached to the jacklegs with heavy duty wood screws such that the bottom of the split rail is 8" above the ground.

- 5. When completed, the fence shall be solid.
- E. Posts that are cut or trimmed for any valid reason shall be given **two coats of preservative material** approved by the Engineer.
- F. Fence line shall be straight and square between corner points. No openings shall be left that will permit stock to pass through the fence.
- G. Stretching by a motor vehicle will not be permitted; the power must be by or through a mechanical stretcher or device designed for such use.
- H. Tension shall be applied in accordance with wire manufacturer's recommendations.
- I. U-shaped staples shall be driven diagonally across the wood grain so that both points do not enter between the same grain. In depressions where wire up-lift occurs, staples shall be sloped slightly upward, against the pull of the wire. On level ground and over knolls, staples shall be sloped slightly downward. Staples shall be driven snugly to hold the jacklegs in place. Wire shall be fastened securely at corner, end, and pull posts. In no case shall staples be driven so tight as to damage the wire.
- J. A cross-fence, not the property of the Owner, shall **not** be fastened to the Owner's fence but shall be terminated, in a workmanlike manner, adjacent thereto.
- K. Weed Control: All equipment used during construction shall be thoroughly washed both inside, outside and underneath of all pickup boxes, trailers, trucks, etc. before entrance to the project area. Vehicles used to commute to and from job site shall be kept clean so as not to transport weed seed to project area. This cost shall be subsidiary to the project and shall not constitute a pay item and shall be considered incidental thereto and no payment shall be made for it.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.1 BASIS OF MEASUREMENT**

- A. All types of fence will be measured by the linear foot complete in place, on its actual alignment, **inclusive** of brace panels, corners, deadmen and tree anchors and **exclusive** of gates and associated gate panels, or wire fence panels at the ends. The measurement will be made on the fence line along the ground, from end post to end post, less the length of gates and gate panels, the intent being to measure the actual length of fence in place.

- B. Any line clearing required **shall be subsidiary to the fence and shall not constitute a pay item and shall be considered incidental to fence construction.**

#### 4.2 BASIS OF PAYMENT

- A. All types of fence shall be paid for on a per foot basis, **excluding gates and associated brace panels**, measured as specified above. Gates shall be paid for separately at the bid unit price.

**END OF SECTION 02842**

## SECTION 02910

### SEEDING

All applicable portions of this specification section in the MPWSS shall apply with the following additions, deletions and/or modifications.

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

Add following:

This work also includes conserving, placing, and finishing topsoil placement at designated areas on the project drawings or as directed by the Engineer.

#### PART 2 PRODUCTS

##### 2.1 SEED

Add the following:

Utilize the following seed mix for all areas to be seeded.

Seed Name	% Pure Live Seed	Lbs. Per Acre
Western Wheatgrass	30	*
Bluebunch Wheatgrass	20	*
Hard Fescue	20	*
Slender Wheatgrass	15	*
Green Needlegrass	15	*

\* Drilled Rate = 25 lbs/acre, Broadcast and Hydroseed Rate = 50 lbs/acre

##### 2.2 TOPSOIL

Add the following:

Utilize all salvaged topsoil conserved from clearing and grubbing operations to cover excavation and embankment slopes prior to fertilizing, seeding, or mulching.

##### 2.4 FERTILIZER

Delete this Section.

## **PART 4      MEASUREMENT AND PAYMENT**

### **4.1      GENERAL**

Delete this section and add the following:

- A.      Revegetation will be measured and paid by the lump sum (LPSM) including all labor, equipment, materials and incidentals required for the completion of the work.
- B.      Placing conserved topsoil will not be measured for payment and is considered incidental to other work items in this Contract.

**END OF SECTION 02910**

## **SECTION 02930**

### **SIGNING**

#### Added Section.

#### **PART 1 GENERAL**

##### **1.1 DESCRIPTION**

- A. This work consists of furnishing and placement and/or removal and reset of signs and sign posts at designated areas on the project drawings or as directed by the Engineer. This work also consists of the mounting and complete installation of FWP supplied signing at designated areas on the project drawings or as directed by the Engineer.

#### **PART 2 PRODUCTS**

##### **2.1 WOOD POSTS**

- A. Furnish posts from dry no. 1 grade Douglas fir, southern or Ponderosa pine, hemlock, spruce, or western larch conforming to AASHTO M 168. Treat the posts with water-borne preservative ACA, ACZA, or CCA according to AWPA Standard C14 except the minimum preservative retention is 0.40 pounds per cubic foot.

##### **2.2 HARDWARE**

- A. Furnish galvanized steel or aluminum alloy material for lag screws, washers, clip angles, wood screws, shear plates, U-bolts, clamps, bolts, nuts, and other fasteners.

#### **PART 3 EXECUTION**

##### **3.1 GENERAL**

- A. Sign locations may be changed to fit field conditions as approved by the Engineer. Determine sign support lengths measured from the top of the sign to bottom of the footing. Backfill signs supports and post by tamping with hand tools and/or mechanical equipment. Install sign supports according to the project drawings or as directed by the Engineer.

##### **3.2 INSTALLATION**

- A. Install signs per the plan drawings. For County Road or Highway sign installations, refer to the Montana Department of Transportation (MDT) Standard Detail Drawing 619-00 regarding sign clearances and mounting heights. Drill breakaway holes according to MDT Standard Detail Drawing 619-20. No concrete footings are required.

#### **PART 4      MEASUREMENT AND PAYMENT**

##### **4.1      PAYMENT**

- A.      Single and/or Double Post Sign installation (FWP supplied sign panels) will be measured and paid for by the each (EACH).

**END OF SECTION 02930**



## **SECTION 03321**

### **CURB STOPS**

#### Added Section.

#### **PART 1 GENERAL**

##### **1.1 DESCRIPTION**

- A. This work consists of furnishing and placement of curb stops at designated areas on the project drawings or as directed by the Project Representative. This work also includes removing and resetting existing curb stops as directed by the Project Representative.

#### **PART 2 PRODUCTS**

##### **1.1 CURB STOPS**

- A. Furnish pre-fabricated concrete curb stops (84" min. length) as designated on the project drawings or as directed by the Project Representative.

#### **PART 3 EXECUTION**

##### **3.1 GENERAL**

- A. Install curb stops at locations as designated on the project drawings or as directed by the Project Representative. Furnish and place No. 5 rebar measuring 3 feet in length to hold curb stops in place. Drive rebar flush with the top of each curb stop.

#### **PART 4 MEASUREMENT AND PAYMENT**

##### **4.1 PAYMENT**

- A. Curb stops will be measured and paid for by the each (EACH).

**END OF SECTION 03321**

## SECTION 03410

### PRE-CAST CONCRETE VAULT LATRINE

#### Added Section.

#### **PART 1 GENERAL**

##### 1.1 DESCRIPTION

- A. This work consists of site preparation (excavation and leveling), backfilling and compaction, and landscaping for Fishing Access Site (FAS) pre-cast concrete vault latrines at designated areas on the project drawings or as directed by the Project Representative.

#### **PART 2 PRODUCTS**

##### 2.1 MATERIALS

- A. Pre-Cast Concrete Vault Latrine.
  - 1. Montana Department of Fish, Wildlife and Parks will supply the latrine through Flathead Concrete Products, Kalispell, MT. The contractor shall coordinate the delivery with Flathead Concrete. The contractor is advised to contact **Flathead Concrete at (406) 752-4259**, as soon as a schedule is established to insure delivery in a timely manner.
- B. Gravel Bedding for Latrine.
  - 1. See Subsection 02235

#### **PART 3 EXECUTION**

##### 3.1 GENERAL

Each latrine location shall be staked in the field by the Project Representative. Refer to the project drawings for pre-cast concrete vault toilet installation locations, details, and dimensions.

##### 3.2 EXCAVATION

Excavate for the installation of the toilet vault to a depth that will allow the structure site to be free draining after installation is completed. Salvage conserved topsoil.

##### 3.3 FINISH FLOOR ELEVATION

Finish floor elevation shall be a minimum of 4 to 6 inches above natural grade measured at the front entrance.

#### 3.4 COMPACTION OF EARTH UNDER TOILET VAULTS

Prior to installation of the toilet building, compact the natural ground underlying the vault with a minimum of three passes with a whacker-type mechanical tamper or equivalent approved by the Project Representative.

#### 3.5 INSTALLATION OF GRAVEL BEDDING UNDER TOILET VAULTS

Install 12 inches of compacted gravel bedding material for leveling course. Compact leveling course with one pass with a whacker-type mechanical tamper or equivalent approved by the Project Representative. Grade level course so there will be no high spots in middle of vault bottom. Finished leveling course shall not vary more than 0.01 foot for the four corners of the vault.

#### 3.6 BACKFILL AND DISPOSAL OF DEBRIS

Backfill around structures, including under exterior slab. Use excavated material for backfill except that rocks larger than six inches in maximum dimension shall not be placed within six inches of exterior of vault walls. Stumps, roots, brush, and other vegetation shall be removed from the site and disposed of in a legal manner by the contractor.

#### 3.7 COMPACTION UNDER ENTRANCE SLAB

Fill under entrance slab shall have excavated material placed in six-inch loose lifts, and compacted with a minimum of two passes with a whacker-type mechanical compactor or equivalent approved by the Project Representative.

#### 3.8 FILL AROUND LATRINES AND SLAB

Spread excess excavated material from vault around structure. Final backfill surface shall be flush with the top of the front slab. Allowance shall be made for the depth of the topsoil. Grade backfill away from structure at maximum slope of five percent unless otherwise noted in the plans or specs or approved by the Project Representative.

#### 3.9 LANDSCAPING

Spread conserved topsoil as final 2" layer after rough grading is completed. Areas disturbed by excavation, backfilling, and stockpiling of excavated materials shall be hand raked to removed exposed rocks over one-inch in maximum dimension. Oversize rocks removed from the surface shall be disposed of off-site or with the approval of the Project Representative used as fill in other items in the contract.

### 3.10 HIDDEN GROUND CONDITION

If the contractor uncovers bedrock, boulders too big to remove, ground water or other unexpected conditions, he shall immediately contact the Project Representative for instructions.

### 3.11 TEMPORARY FENCING

- A. All excavations left open overnight shall be fenced with polyethylene plastic safety fence, orange color, 48" high, and 4" maximum mesh openings. Fencing shall be secured to steel posts on the side away from the excavation unless otherwise approved in advance by the Project Representative.
  - 1. The bottom of the fence shall generally follow the contour of the ground.
  - 2. Maximum spacing of the steel posts shall be ten feet.
- B. No excavations will be left open more than seven days unless otherwise approved by the Project Representative.

### 3.12 PATHWAYS

- A. Construct a pathway between each latrine installation and the adjacent roadway or parking area. Requirements of each pathway are as follows:
  - 1. Utilize compacted pea gravel for all pathway surfaces, unless otherwise specified on the project drawings.
  - 2. Construct pathways that follow existing ground contours as much as possible. Limit excessive excavation and embankment.
  - 3. Cross slopes on the pathway shall be 1%.
  - 4. The running slope of the pathway shall not exceed 5%.
  - 5. Slopes will be checked using a 3' level.
  - 6. Ridges or other sudden changes in slope shall not exceed of 1/2". The top surface of the path shall match the top surface of the Vault Latrine Slab within 1/2".

## **PART 4 MEASUREMENT AND PAYMENT**

### 4.1 GENERAL

- A. Latrine Installation (Owner Furnished) will be measured and paid for by the Lump Sum (LPSM) including all labor, equipment, materials, and incidentals required for the completion of the work.

**END OF SECTION 03410**